

WHAT IS CLAIMED IS:

1. An expression vector comprising a vitellogenin gene operably linked to a promoter, wherein the promoter is functional in a eukaryotic host suitable for use as a feed or feed additive.
2. The expression vector according to claim 1 wherein the promoter is functional in yeast.
3. The expression vector according to claim 2 wherein the promoter is a constitutive promoter.
4. The expression vector according to claim 3 wherein the promoter is a yeast glyceraldehyde-3-phosphate dehydrogenase (GAP) promoter.
5. The expression vector according to claim 4 comprising SEQ ID NO:1.
6. The expression vector according to claim 5 which is Vtg (-SS)/pGAPZA, Vtg (Vtg SS)/pGAPZA or Vtg (α SS)/pGAPZ α C.
7. A transgenic eukaryotic host suitable for use as a feed or feed additive comprising the expression vector according to claim 1.
8. A transgenic yeast comprising an expression vector wherein the expression vector comprises a vitellogenin gene operably linked to a promoter functional in yeast.
9. The transgenic yeast according to claim 8 wherein multiple copies of the expression vector has integrated into the yeast genome.
10. The transgenic yeast according to claim 8 or 9 wherein the promoter is yeast GAP promoter.
11. The transgenic yeast according to claim 10 comprising SEQ ID NO: 1.
12. The transgenic yeast according to claim 11 wherein the yeast is *Pichia pastoris*.

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13. The transgenic yeast according to claim 12 wherein vitellogenin protein is expressed intracellularly.

14. The transgenic yeast according to claim 13 wherein yeast is protease deficient.

15. The transgenic yeast according to claim 14 wherein the amino acid and lipid contents are increased.

16. The transgenic yeast according to claim 15 wherein the level of polyunsaturated fatty acids is increased.

17. A method of increasing the level of polyunsaturated fatty acids in a transgenic yeast according to any one of claims 8 to 15 comprising culturing the transgenic yeast in media comprising fish oil.

18. The method according to claim 17 wherein the concentration of the fish oil in the media is between about 2% and 5%.

19. A method for increasing the survival rates of oviparous larvae comprising the step of feeding the larvae transgenic yeast according to any one of claims 8 to 16 or an intermediate live feed that has been fed transgenic yeast according to any one of claims 8 to 16.

20. The method according to claim 19 wherein the larvae are aquatic or marine larvae.

21. The method according to claim 20 wherein the aquatic or marine larvae are tilapia larvae.

22. The method according to claim 21 wherein the tilapia larvae is fed about 1.0 to 1.6mg of transgenic yeast per tilapia larvae per day.

23. The method according to claim 21 wherein the intermediate live feed is rotifer or artemia.

24. The method according to claim 22 wherein the step of feeding the larvae

transgenic yeast further comprises co-feeding with an intermediate live feed.

25. The method according to claim 24 wherein the intermediate live feed is a rotifer or artemia.

26. The method according to claim 25 wherein the rotifer or artemia is co-fed at a density of 5 individuals per milliliter.

27. A method of increasing broodstock egg quality of an oviparous animal comprising the step of feeding the broodstock the transgenic yeast according to any one of claims 8 to 16 or an intermediate live feed that has been fed transgenic yeast according to any one of claims 8 to 16.

28. The method according to claim 27 wherein the oviparous animal is an aquatic or marine oviparous animal.

29. The method according to claim 28 wherein the aquatic or marine oviparous animal is a fish.

30. The method according to claim 28 wherein the fish is tilapia.

31. A method of enriching an intermediate live feed comprising the step of feeding the intermediate live feed the transgenic yeast according to any one of claims 8 to 16.

32. The method according to claim 31 wherein the intermediate live feed is a rotifer or an artemia.

33. The method according to claim 32 wherein the artemia is an *Artemia* napulii.

34. The method according to claim 33 wherein the fatty acid content of the artemia is increased.

35. The method according to claim 34 wherein the fatty acid is a polyunsaturated fatty acid.

36. The method according to claim 35 wherein the polyunsaturated fatty acid is

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eicosapentaenoic acid or docosahexanoic acid...